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SELF-RIGHTING ACTION OF COAST GUARD  
EXPERIMENTAL SR-1 LIFEJACKET COMPARED  
WITH OTHER LIFEJACKETS

W. E. Creedon

Coast Guard  
Baltimore, Maryland

15 October 1946

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# RESEARCH *and* DEVELOPMENT DIVISION

SELF-RIGHTING ACTION OF COAST  
GUARD EXPERIMENTAL SR-1  
LIFEJACKET COMPARED WITH  
OTHER LIFEJACKETS

## REPORT

Report No. 1  
Project No. CGTD-~~9-13-46~~  
15 October, 1946 J18-3/3-5-3

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# UNITED STATES COAST GUARD

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UNITED STATES COAST GUARD

WASHINGTON 14 Nov., 1946

Memorandum for Floating Units Division  
Attn: Lt. Cdr. Wilcox

Subj: Report on self-righting characteristics  
of life jackets

1. Inclosed for your information and file is a copy of Report No. 1 of Research Project CGRD-3-13-46 dated 15 October, 1946. This report covers tests conducted to compare the self-righting characteristics of a new Coast Guard experimental model jacket with various other jackets now in use.

2. Moving pictures covering these tests are available in the Testing and Development Division, Room 5210, for observation by interested parties.

*R. D. Schmidman*  
R. D. SCHMIDMAN  
Acting Chief, Testing and  
Development Division

*Capt. Blum:*  
*C.G. exp. sr. 1 apparently*  
*not efficient, but considerable bulky*  
*storage for shipboard storage*  
*However discussed service tests before*  
*any commitment made to change name*  
*life jackets*

*JK*

*Wilcox*

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U. S. COAST GUARD  
FIELD TESTING AND DEVELOPMENT UNIT  
COAST GUARD YARD  
CURTIS BAY, MARYLAND

15 October 1946

Project No. CGTD-2-12-46 J28-3/3-5-3

Report No. 1

SELF-RIGHTING ACTION OF COAST GUARD EXPERIMENTAL SR-1  
LIFEJACKET COMPARED WITH OTHER LIFEJACKETS

Submitted by:

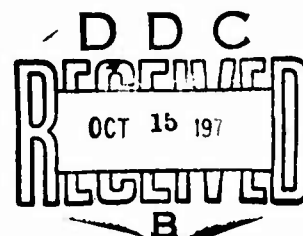
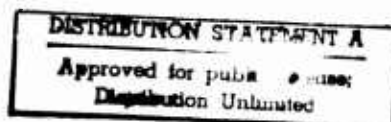
*W. E. Creedon*  
W. E. CREEDON  
Commander USCG  
Commanding

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this document may be better  
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## INTRODUCTION

The wearer of a lifejacket who is unconscious upon entering the water, or any time thereafter, or too weak to assist himself, must rely on his lifejacket to bring and hold his face clear of the water to permit breathing for survival. Realizing the importance of this function of a lifejacket, the Coast Guard has under development an Experimental SR-1 lifejacket designed especially to produce self-righting.

Commander M. DeMartino, USCG, submitted the original design of the Experimental SR-1 lifejacket to the Field Testing and Development Unit and supervised the construction of test samples at the Coast Guard YARD.

The Experimental SR-1 lifejacket is intended for use by Coast Guard personnel on surface vessels; for wear at all times, including at work, in war time; to be worn, in peace time, only when the nature of the work requires its use.

This report is concerned mainly with a comparison of the self-righting properties of the Experimental SR-1 lifejacket and several types of present day lifejackets.

### SUMMARY

The Coast Guard is developing a new lifejacket for use by Coast Guard personnel on surface vessels.

It is designed especially to bring and hold the wearer's face clear of the water to permit breathing for survival when the wearer is unconscious or too weak to assist himself.

Lifejacket wearers were instructed to take a position face down in the water and assume complete relaxation as if unconscious. For the types of lifejackets tested, THE PERCENTAGE OF TRIALS ON WHICH THE LIFEJACKET SUCCESSFULLY RIGHTED THE WEARER IS SUMMARIZED:

|  |       |
|--|-------|
| Coast Guard Experimental SR-1 lifejacket<br>(worn by 13 men for a total of 126 trials)                                 | 97.6% |
| Coast Guard Model 2 Lifejacket<br>(worn by 8 men for a total of 24 trials)   | 91.7% |
| Mellen Institute J-40 Lifejacket<br>(worn by 13 men for a total of 24 trials)  | 86.5% |
| Modified Navy Standard Lifejacket (Fiber-<br>glas used in lieu of Kapak)<br>(worn by 13 men for a total of 114 trials) | 40.9% |

A 16 MM. silent, colored, motion picture of the trials, entitled "Self-righting Action of the Coast Guard Experimental SR-1 Lifejacket Compared with other Lifejackets" is available at the Office of the Chief, Testing and Development Division, U.S.C.G. Headquarters, Washington, D. C.

## PROCEDURE

The first trials of the Coast Guard Experimental SR-1 lifejacket (see description, page 8) were conducted on 5 August, 1946, from a pier at Fort Smallwood, Baltimore Harbor, Maryland, in deep water in a flat calm and no sea. Eight enlisted men, garbed in bathing trunks only, wore the Experimental SR-1 lifejacket and a Modified Navy Standard lifejacket (see description, page 11) in turn. Each jumped feet first into the water with instructions to exhale a normal amount of air, take a position face down in the water, and assume complete relaxation, as if unconscious. Each man made three trials starting with arms along the sides; three more trials starting with arms extended straight beyond the head. Observations were made of the success or failure of the lifejackets to bring and keep the face of the wearer clear of the water to permit breathing.

More trials were conducted on 27 August, 1946, at the same location. On this occasion there was a choppy sea of about one foot height, some whitecaps, and a 15 mile wind. Eight enlisted men, clothed in dungarees and oxford type Navy shoes, wore the Experimental SR-1, the Modified Navy Standard, and the Mellon Institute J-40 lifejacket (see description, page 7) in turn. Trials and observations were as before.

On 7 October, 1946 a demonstration was conducted in an open fresh water pool in Washington D. C. Eight enlisted men clothed in dungarees and Army field shoes wore each of the following lifejackets in turn: Coast Guard Experimental SR-1, Modified Navy Standard, Mellon Institute J-40, and the Coast Guard Model 2 lifejacket (see description, page 10), which is standard for the Merchant Marine. Each man jumped feet first into the pool, swam to a designated location with instructions to inhale a normal amount of air, take a position face down in the water and assume complete relaxation as if unconscious. Each man made one trial starting with arms along the sides; two more trials starting with arms extended straight beyond the head. Observers recorded, and camera men took movies of, the success or failure of each lifejacket to bring and keep the wearer's face clear of the water to permit breathing.

To determine the "static" buoyancy, each lifejacket was wrapped around a heavy metal frame and suspended in a vertical position in a tank of fresh water so as to submerge the topmost part of the jacket two inches. The weight in water of the frame alone, minus the weight in water of the jacket clad frame, gave the buoyancy. This method has been employed by the Mellon Institute of Industrial Research.

The dry weight of the pad inserts, also the entire lifejackets, was determined.



Present at the demonstration on 7 October, 1946, were the following: Mr. E. B. Amey and Mr. E. A. Utecht of the Bureau of Ships, U. S. Navy; Mr. G. W. Johnston, of the Research and Development Division, Transportation Corps, War Department; Commander M. DeMartine and Lieutenant J. E. Waters of the Search and Rescue Agency, U. S. Coast Guard; Mr. R. C. Hale and Mr. P. Gibson of the Merchant Marine Technical Division, U. S. Coast Guard; and members of the Testing and Development Division, U. S. Coast Guard, who conducted and observed the tests.

## DISCUSSION

The Coast Guard Experimental SR-1 lifejacket has an innovation of design in that it has two front flap pads that are intended to be worn in one position for continual shipboard wear and in another position for wear in the water. The tests conducted in this report, with one exception, were with the front flap pads in the front (water-wear) position. In the only trial in which the front flap pads were not secured in the front (water-wear) position, the jacket satisfactorily righted the wearer. Additional tests of the self-righting qualities of the jacket, with front flap pads not secured in the water-wear position, are contemplated.

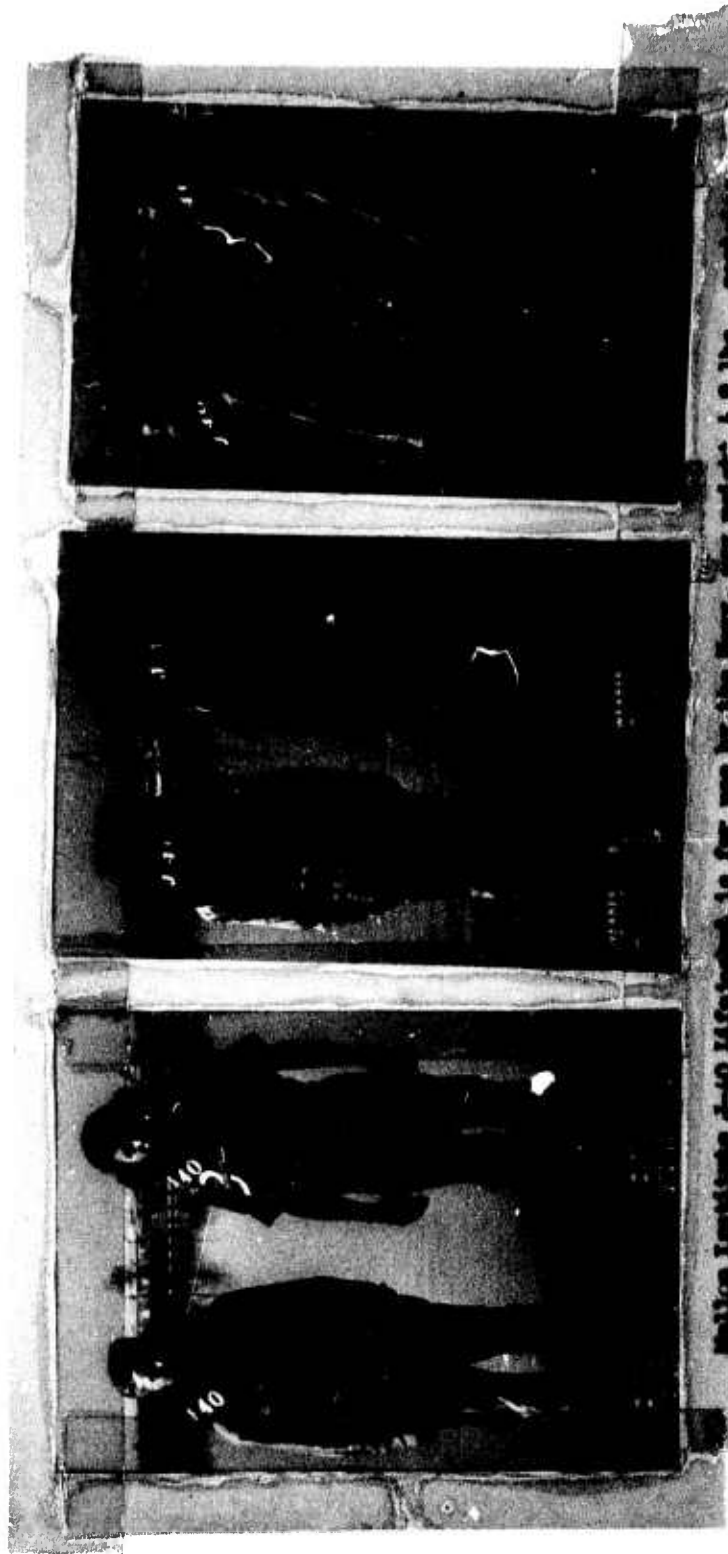
The Navy Standard lifejacket tested was a modification of Navy Specification 23 P-12 INT in that the cotton drill envelope had not been treated with flame-proofing compound, also Fiberglas was substituted for Kapok as the buoyant material.

The dry weight of the lifejackets was determined as: Mellon Institute J-40, 4.9 lb.; Coast Guard Experimental SR-1, 6.0 lb. Modified Navy Standard, 5.2 lb.; Coast Guard Model 2, 3.0 lb. In explanation of the variance, the Coast Guard Model 2 is lightest due primarily to the use of Kapok in lieu of Fiberglas which is employed in the other three, the ratio of weight of Kapok to Fiberglas being 1 to 2.2 for equal buoyancy, according to the Mellon Institute of Industrial Research reports; the Coast Guard Experimental SR-1 lifejacket is heaviest primarily because it is the only one of the four lifejackets which had the envelope material impregnated with flame-proofing compound, the flame-proofing compound causing an increase in weight of cotton drill of about 50%.

The wearers of the lifejackets were instructed to relax as if unconscious but they were noticeably handicapped by the cold. Although it has not been demonstrated that a conscious person can assume the relaxed attitude of an unconscious person in water, the use of conscious persons was resorted to, to avoid detrimental physical aftermath.

On the 5 and 27 August tests, data was taken of elapsed time from start to face clear of the water to permit breathing, also from start to wearer in final position. On the demonstration, 7 October, time was recorded for face to clear the water, except that on the Coast Guard Experimental SR-1 lifejacket, the recorder, due to a misunderstanding, recorded the time from start to wearer in final position.

Due to the shortage of personnel, no attempt was made to secure men of unusual physical characteristics. However, it is believed that the subjects employed are representative of the personnel serving on Coast Guard vessels.



Ballon Inflatable J-40 Inflatable is for use by the Navy, dry weight 4.9 lbs., containing 3.3 lbs. of Fiberglas for buoyancy, employs muslin pad cover material and drill envelope material, has two leg straps and a collar.



Front pads in position for wear in water

Coast Guard Experimental SR-1 Lifejacket is for use by Coast Guard personnel on surface borne vessels, total dry weight 6.0 lbs., envelope contains 3.4 lbs. Fiberglas for buoyancy, pad cover material is muslin and envelope material is flame-proofed cotton drill, and has one leg strap and has a collar. The side of the collar against the wearer's face is Nylon. The two front pads are held in the open position by two snaps on each pad; tied together in front by tie tabs. For continual wear aboard ship the front pads are intended to be snapped back in open position; made fast in front by tie tabs just prior to entering the water.

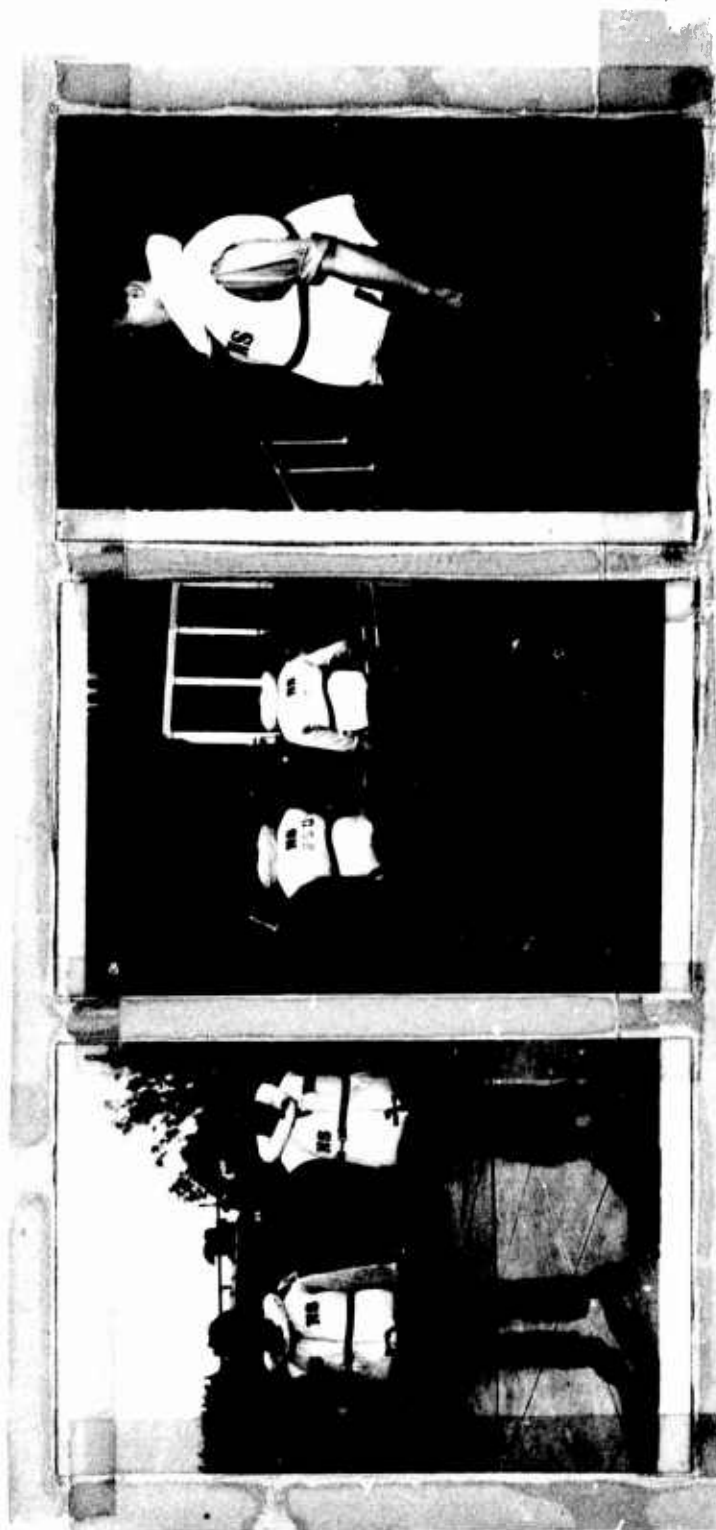


Front pads in position for wear aboard ship

Additional views of Coast Guard Experimental SG-1 lifejacket. See description on previous page. The rear view photograph is shown because it is identical with view on previous page for lifejacket in front (water-wear) position.



Coast Guard Model 2 Lifejacket (Coast Guard Spec. 160.002) is for use by the Merchant Marine, total dry weight 3.0 lb., envelope contains 2.0 lb. of Kapok for buoyancy, pad cover material is muslin and envelope material is drill, has no leg strap and no collar.



Modified Navy Standard Lifejacket (Navy Spec. 23-P-12 (IM) except that Fiberglas is used in place of Kapak and envelope is not flame-proofed) is for use by the Navy. total dry weight 5.2 lb., envelope contains 3.7 lb. of Fiberglas for buoyancy, pad over material is swelin and envelope material is drill, has two leg straps and a collar.

TEST OF COAST GUARD EXPERIMENTAL SR 1 LIFEJACKET IN OPEN FRESH WATER POOL. NO WIND  
7 OCTOBER, 1946. MEN JOHN DUNBARREES AND ARMY ISSUE SHOES.

| Code designation of wearer                | "A"    | "B"    | "C"    | "D"       | "E"      | "F"    | "G"    | "H"    |
|---|--------|--------|--------|-----------|----------|--------|--------|--------|
| Wearer's name                             | Devine | Hadden | Hering | Kesmeseld | Nevelick | Smith  | Walker | Moore  |
| Height                                    | 5'6"   | 5'6"   | 6'2"   | 6'1"      | 5'10"    | 5'8"   | 5'8"   | 5'9"   |
| Weight                                    | 150#   | 130#   | 185#   | 190#      | 160#     | 140#   | 125#   | 150#   |
| ARMS AT SIDE AT START (TRIAL #1)          |        |        |        |           |          |        |        |        |
| Face brought and kept clear of water      | Yes    | Yes    | Yes    | Yes       | Yes      | Yes    | Yes    | Yes    |
| Secs. to right to final position*         | 4      | 3      | 3.5    | 3.5       | 3        | 4      | 3.5    | 4      |
| Direction turned by lifejacket            | Swase  | Backwd | Backwd | Backwd    | Backwd   | Backwd | Backwd | Backwd |
| Secs. face down on failures to right      | Swase  | Backwd | Backwd | Backwd    | Backwd   | Backwd | Backwd | Backwd |
| ARMS EXTENDED FORWARD AT START (TRIAL #2) |        |        |        |           |          |        |        |        |
| Face brought and kept clear of water      | Yes    | Yes    | Yes    | Yes       | Yes      | Yes    | Yes    | Yes    |
| Secs. to right to final position*         | 7.5    | 4      | 12.5   | 5         | 1'       | 4      | 7      | 6      |
| Direction turned by lifejacket            | Backwd | Swase  | Backwd | Backwd    | Backwd   | Backwd | Backwd | Backwd |
| Secs. face down on failures to right      | Backwd | Swase  | Backwd | Backwd    | Backwd   | Backwd | Backwd | Backwd |
| ARMS EXTENDED FORWARD AT START (TRIAL #3) |        |        |        |           |          |        |        |        |
| Face brought and kept clear of water      | Yes    | Yes    | Yes    | Yes       | Yes      | Yes    | Yes    | Yes    |
| Secs. to right to final position*         | 10     | 4      | 11.2   | 6         | 8.4      | 6      | 4.4    | 5.1    |
| Direction turned by lifejacket            | Backwd | Backwd | Backwd | Backwd    | Backwd   | Backwd | Backwd | Backwd |
| Secs. face down on failures to right      | Backwd | Backwd | Backwd | Backwd    | Backwd   | Backwd | Backwd | Backwd |
| Ears and face clear of water on successes | Yes    | Yes    | Yes    | Yes       | Yes      | Yes    | Yes    | Yes    |

\* The time is from start to wearer righted to final position, whereas on the other tests on this date, the times recorded are from start to face clear of the water.

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TEST OF MODIFIED NAVY STANDARD LIFEJACKET IN OPEN FRESH WATER POOL.  
7 OCTOBER, 1946. MEN WORE DUNGAREES AND ARMY ISSUE SHOES. NO WIND.

| Code designation of wearer | "A"    | "B"    | "C"     | "D"      | "E"    | "F"  | "G"    | "H"   |
|----------------------------|--------|--------|---------|----------|--------|------|--------|-------|
| Wearer's name              | Devine | Hadden | Herring | Kesmoski | Mydock | Smit | Falker | Meere |
| Height                     | 5'7"   | 5'6"   | 6'2"    | 6'1"     | 5'10"  | 5'8" | 5'8"   | 5'9"  |
| Weight                     | 150#   | 130#   | 185#    | 190#     | 160#   | 140# | 125#   | 150#  |

ARMS AT SIDE AT START (TRIAL #1)

|                                      |    |    |    |      |    |       |       |    |
|--------------------------------------|----|----|----|------|----|-------|-------|----|
| Face brought and kept clear of water | No | No | No | Yes  | No | Yes   | Yes   | No |
| Secs. for face to come clear         |    |    |    | 4    |    | 12    | 4     |    |
| Direction turned by lifejacket       |    |    |    | Back |    | Swave | Swave |    |
| Secs. face down on failures to right | 25 | 18 | 18 |      | 24 |       |       | 8  |

ARMS EXTENDED FORWARD AT START (TRIAL #2)

|                                      |    |    |    |    |    |    |    |    |
|--------------------------------------|----|----|----|----|----|----|----|----|
| Face brought and kept clear of water | No | No | No | No | No | No | No | No |
| Secs. for face to come clear         |    |    |    |    |    |    |    |    |
| Direction turned by lifejacket       |    |    |    |    |    |    |    |    |
| Secs. face down on failures to right | 32 | 13 | 18 | 11 | 32 | 37 | 18 | 12 |

ARMS EXTENDED FORWARD AT START (TRIAL #3)

|                                      |    |    |    |    |    |    |    |    |
|--------------------------------------|----|----|----|----|----|----|----|----|
| Face brought and kept clear of water | No | No | No | No | No | No | No | No |
| Secs. for face to come clear         |    |    |    |    |    |    |    |    |
| Direction turned by lifejacket       |    |    |    |    |    |    |    |    |
| Secs. face down on failures to right | 35 | 13 | 16 | 13 | 18 | 12 | 17 | 11 |

Ears and face clear of the water on successes

Yes

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TEST OF MELLON INSTITUTE J 40 LIFEJACKET IN OPEN FRESH WATER POOL. NO "IND."  
7 OCTOBER 1976 MEN WORE DUNGAREES AND ARMY ISSUE SHOES.

| Code designation of wearer | "A"    | "B"    | "C"    | "D"      | "E"    | "F"   | "G"    | "H"   |
|----------------------------|--------|--------|--------|----------|--------|-------|--------|-------|
| Wearer's name              | Devine | Hadden | Hering | K sm skt | N Vick | Smith | walker | Mare  |
| Height                     | 5' 7"  | 5' 6"  | 5' 8"  | 6' 10"   | 5' 10" | 5' 8" | 5' 8"  | 5' 9" |
| Weight                     | 160#   | 150#   | 155#   | 160#     | 140#   | 140#  | 125#   | 150#  |

ARMS AT SIDE AT START (TRIAL #1)

Face brought and kept clear of water  
Sees for face to come clear  
Distraction caused by life jacket  
Sees face down on surface of water

ARMS EXTENDED FORWARD AT START (TRIAL #2)

Face brought and kept clear of water  
Sees face to come clear  
Distraction caused by life jacket  
Sees face down on surface of water

ARMS EXTENDED FORWARD AT START (TRIAL #3)

Face brought and kept clear of water  
Sees face to come clear  
Distraction caused by life jacket  
Sees face down on surface of water

ARMS AT SIDE AT START (TRIAL #4)

Face brought and kept clear of water  
Sees face to come clear  
Distraction caused by life jacket  
Sees face down on surface of water

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TEST OF COAST GUARD MODEL 2 LIFEJACKET IN OPEN FRESH WATER POOL. NO WIND.  
7 OCTOBER, 1946. MEN WORE DUNGAREES AND ARMY ISSUE SHOES.

| Code designation of wearer                | "A"    | "B"    | "C"    | "D"      | "E"    | "F"   | "G"    | "H"          |
|---|--------|--------|--------|----------|--------|-------|--------|--------------|
| Wearer's name                             | Devine | Hadden | Horing | Kesmoski | Nevick | Smith | Walker | Moore        |
| Height                                    | 5'7"   | 5'6"   | 6'2"   | 6'1"     | 5'10"  | 5'8"  | 5'8"   | 5'9"         |
| Weight                                    | 150#   | 130#   | 185#   | 190#     | 160#   | 140#  | 125#   | 150#         |
| ARMS AT SIDE AT START (TRIAL #1)          |        |        |        |          |        |       |        |              |
| Face brought and kept clear of water      | Yes    | Yes    | Yes    | Yes      | Yes    | Yes   | Yes    | No           |
| Secs. for face to come clear              | 4      | 3      | 3      | 3.5      | 3.5    | 3     | 3.5    | =            |
| Direction turned by lifejacket            | Bckwd  | Bckwd  | Bckwd  | Bckwd    | Bckwd  | Bckwd | Bckwd  | Bckwd        |
| Secs. face down on failures to right      | =      | =      | =      | =        | =      | =     | =      | Not recorded |
| ARMS EXTENDED FORWARD AT START (TRIAL #2) |        |        |        |          |        |       |        |              |
| Face brought and kept clear of water      | Yes    | Yes    | Yes    | Yes      | Yes    | Yes   | Yes    | No           |
| Secs. for face to come clear              | 2.5    | 4      | 6      | 4        | 3      | 3.5   | 3      | =            |
| Direction turned by lifejacket            | Bckwd  | Bckwd  | Bckwd  | Bckwd    | Bckwd  | Bckwd | Bckwd  | Bckwd        |
| Secs. face down on failures to right      | =      | =      | =      | =        | =      | =     | =      | Not recorded |
| ARMS EXTENDED FORWARD AT START (TRIAL #3) |        |        |        |          |        |       |        |              |
| Face brought and kept clear of water      | Yes    | Yes    | Yes    | Yes      | Yes    | Yes   | Yes    | Yes          |
| Secs. for face to come clear              | 4      | 3      | 5      | 4        | 3.5    | 3     | 3      | 4            |
| Direction turned by lifejacket            | Bckwd  | Bckwd  | Bckwd  | Bckwd    | Bckwd  | Bckwd | Bckwd  | Bckwd        |
| Secs. face down on failures to right      | =      | =      | =      | =        | =      | =     | =      | =            |
| Ears and face clear of water on successes | Yes    | Yes    | Yes    | Yes      | Yes    | Yes   | Yes    | Yes          |

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TEST OF COAST GUARD EXPERIMENTAL SE 1 LIFEJACKET IN CHESAPEAKE BAY CHOPPY SEA, ONE FOOT HEIGHT, 20 MPH WIND  
2 AUGUST 1968, MEN WERE DUNGAREES AND SHOES.

| Wearer | Weight | Height | Age | Sex | Wearer | Weight | Height | Age | Sex | Wearer | Weight | Height | Age | Sex | Wearer | Weight | Height | Age | Sex |
|--------|--------|--------|-----|-----|--------|--------|--------|-----|-----|--------|--------|--------|-----|-----|--------|--------|--------|-----|-----|
|        |        |        |     |     |        |        |        |     |     |        |        |        |     |     |        |        |        |     |     |

ARMS AT SIDE AT START

Number of trials  
Number of trials on which face was brought and kept clear of water  
Avg. sec. for face to be brought clear of water  
Avg. sec. for righting to final position  
Avg. sec. face down on failures to right  
Direction turned on successes

ARMS EXTENDED FORWARD AT START

Number of trials  
Number of trials on which face was brought and kept clear of water  
Avg. sec. for face to be brought clear of water  
Avg. sec. for righting to final position  
Avg. sec. face down on failures to right  
Direction turned on successes

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TEST OF MELLON INSTITUTE J-40 LIFEJACKET IN CHESAPEAKE BAY CHURCHY SEA, ONE FOOT INLAND, 15 MPH WIND  
27 AUGUST, 1946 NEW JERSEY BUNGALOWS AND SHORES.

| Wearer | Metz  | Sikorski | McCawley | Horing | Smith | Walker | Anderson | Sanders |
|--------|-------|----------|----------|--------|-------|--------|----------|---------|
| Height | 5' 9" | 5' 8"    | 6' 1"    | 6' 2"  | 5' 8" | 5' 8"  | 5' 6"    | 5' 8"   |
| Weight | 150#  | 145#     | 170#     | 185#   | 140#  | 125#   | 140#     | 170#    |

ARMS AT SIDE AT START

|  |       |       |       |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Number of trials   | 3     | 3     | 3     | 3     | 3     | 3     | 3     | 3     |
| Number of trials on which face was brought and kept clear of water | 1     | 3     | 3     | 3     | 3     | 3     | 3     | 3     |
| Avg. sec. for face to be brought clear of water                    | 11    | 6     | 4     | 3     | 3     | 5     | 3     | 7     |
| Avg. sec. for righting to final position                           | 15    | 10    | 9     | 11    | 4     | 8     | 5     | 10    |
| Avg. sec. face down on failures to right                           | 20    |       |       |       |       |       |       |       |
| Direction turned on successes                                      | Bckwd | Bckwd | Bckwd | Bckwd | Bckwd | Bckwd | Bckwd | Bckwd |

ARMS EXTENDED FORWARD AT START

|  |       |       |       |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Number of trials   | 5     | 3     | 3     | 3     | 3     | 3     | 3     | 3     |
| Number of trials on which face was brought and kept clear of water | 3     | 3     | 3     | 3     | 3     | 3     | 3     | 3     |
| Avg. sec. for face to be brought clear of water                    | 12    | 8     | 4     | 8     | 3     | 5     | 4     | 9     |
| Avg. sec. for righting to final position                           | 15    | 11    | 7     | 13    | 8     | 9     | 6     | 12    |
| Avg. sec. face down on failures to right                           | 17    |       |       |       |       |       |       |       |
| Direction turned on successes                                      | Bckwd | Bckwd | Bckwd | Bckwd | Bckwd | Bckwd | Stnse | Bckwd |

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# TEST OF COAST GUARD EXERCISES. BR 1 LIP. START IN CHINESE BAY. NO 3LA. NO "IRD 5 AUGUST 1944. (When above nothing to think about.)

| Wearer | Mott  | Nikorski | Norling | Moore  | Novick | Walker | Andersen | Sanders |
|--------|-------|----------|---------|--------|--------|--------|----------|---------|
| Height | 5' 9" | 5' 9"    | 5' 8"   | 5' 10" | 5' 10" | 5' 8"  | 5' 6"    | 5' 8"   |
| Weight | 160#  | 145#     | 180#    | 150#   | 160#   | 125#   | 140#     | 170#    |

## ARMS AT SIDE AT START

|  |        |        |      |      |        |       |        |      |
|--|--------|--------|------|------|--------|-------|--------|------|
| Number of trials   | 3      | 3      | 3    | 3    | 3      | 3     | 3      | 3    |
| Number of trials on which face was brought and kept clear of water | 3      | 3      | 3    | 3    | 3      | 3     | 3      | 3    |
| Avg. sec. for face to be brought clear of water                    | 3      | 3      | 3    | 3    | 8      | 1 1/2 | 3      | 3    |
| Avg. sec. for righting to final position                           | 5      | 3      | 3    | 4    | 10     | 1     | 6      | 1    |
| Avg. sec. face down on failures to right                           |        |        |      |      |        |       |        |      |
| Direction turned on successes                                      | Backwd | Backwd | Sdws | Sdws | Backwd | Sdws  | Backwd | Sdws |

## ARMS EXTENDED FORWARD AT START

|  |        |        |    |        |        |      |      |      |
|--|--------|--------|----|--------|--------|------|------|------|
| Number of trials   | 3      | 3      | 3  | 3      | 3      | 3    | 3    | 3    |
| Number of trials on which face was brought and kept clear of water | 3      | 3      | 0  | 3      | 3      | 3    | 3    | 3    |
| Avg. sec. for face to be brought clear of water                    | 13     | 10     |    | 5      | 11     | 1    | 5    | 5    |
| Avg. sec. for righting to final position                           | 17     | 15     | -  | 2      | 14     | 7    | 7    | 7    |
| Avg. sec. face down on failures to right                           |        |        | 10 |        |        |      |      |      |
| Direction turned on successes                                      | Backwd | Backwd |    | Backwd | Backwd | Sdws | Sdws | Sdws |

TEST OF MODIFIED NAVY STANDARD LIFEJACKET IN CHESAPEAKE BAY. NO SEA. NO WIND.  
5 AUGUST, 1946. MEN WORE BATHING TRUNKS AND NO SHOES.

| Wearer | Mott | Sikorski | Hering | Moore | Novick | Walker | Anderson | Sanders |
|--------|------|----------|--------|-------|--------|--------|----------|---------|
| Height | 5'9" | 5'8"     | 6'2"   | 5'9"  | 5'10"  | 5'8"   | 5'6"     | 5'8"    |
| Weight | 160# | 145#     | 185#   | 150#  | 160#   | 125#   | 140#     | 170#    |

ARMS AT SIDE AT START

|  |        |    |    |         |    |        |    |        |
|--|--------|----|----|---------|----|--------|----|--------|
| Number of trials   | 3      | 3  | 3  | 3       | 3  | 3      | 4  | 3      |
| Number of trials on which face was brought and kept clear of water | 2      | 0  | 0  | 0       | 0  | 3      | 0  | 3      |
| Avg. sec. for face to be brought clear of water                    | 7      |    |    |         |    | 1      |    | 4      |
| Avg. sec. for righting to final position                           | 8      |    |    |         |    | 2      |    | 8      |
| Avg. sec. face down on failures to right                           | 15     | 17 | 13 | No data | 17 |        | 15 |        |
| Direction turned on successes                                      | Sdwise |    |    |         |    | Sdwise |    | Sdwise |

ARMS EXTENDED FORWARD AT START

|  |    |    |    |         |    |        |  |   |
|--|----|----|----|---------|----|--------|--|---|
| Number of trials   | 3  | 3  | 3  | 3       | 3  | 3      |  |   |
| Number of trials on which face was brought and kept clear of water | 0  | 0  | 0  | 0       | 0  | 0      |  |   |
| Avg. sec. for face to be brought clear of water                    | -  |    |    |         |    | -      |  | - |
| Avg. sec. for righting to final position                           |    |    |    |         |    | 17     |  |   |
| Avg. sec. face down on failures to right                           | 14 | 18 | 12 | No data | 17 |        |  |   |
| Direction turned on successes                                      |    |    |    |         |    | Sdwise |  |   |



BUOYANCY OF LIFEJACKETS EMPLOYED IN TEST  
(Determined by Static Tank Method)

|                              | <u>Modified Navy Standard</u> |      |      |  | <u>Mellen Institute J-40</u> |      |      |  | <u>Coast Guard Model No. 2</u> |      |      |  | <u>C.G. Experimental SR 1</u> |      |      |  |
|------------------------------|-------------------------------|------|------|--|------------------------------|------|------|--|--------------------------------|------|------|--|-------------------------------|------|------|--|
|                              | #1                            | #2   | AVG  |  | #1                           | #2   | AVG  |  | #1                             | #2   | AVG  |  | #1                            | #2   | AVG  |  |
| * 5 Minute Buoyancy (pounds) | 39.2                          | 40.4 | 39.8 |  | 29.1                         | 27.3 | 28.2 |  | 29.2                           | 28.9 | 29.1 |  | 33.3                          | 33.0 | 33.2 |  |
| 6 Hour Buoyancy (pounds)     | 37.4                          | 38.0 | 37.7 |  | 28.8                         | 27.0 | 27.9 |  | 23.7                           | 24.7 | 24.2 |  | 31.7                          | 31.4 | 31.6 |  |
| 24 Hour Buoyancy (pounds)    | 37.2                          | 37.8 | 37.5 |  | 28.1                         | 26.4 | 27.3 |  | 19.5                           | 20.6 | 20.1 |  | 30.9                          | 30.5 | 30.7 |  |

\* Two jackets of each type were employed.

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